

UNIT 1 DAY 3

Section 1.2 & 1.3

Order and Absolute Value

PROPERTIES OF ORDER

For all real numbers a , b , and c :

TRICHOMY PROPERTY

either $a < b$, or $a > b$, or $a = b$

TRANSITIVE PROPERTY

If $a < b$ and $b < c$, then $a < c$.

ADDITION PROPERTY

If $a < b$, then $a + c < b + c$.

MULTIPLICATION PROPERTY

If $a < b$, and if $c > 0$, then $ac < bc$.

If $a < b$, and if $c < 0$, then $ac > bc$.

ABSOLUTE VALUE

For all real numbers a , $|a| = \begin{cases} a & \text{if } a \geq 0 \\ -a & \text{if } a < 0. \end{cases}$

PROPERTIES OF ABSOLUTE VALUE

$$|a| \geq 0$$

$$|-a| = |a| \quad |-5| = |5|$$

$$|a| \cdot |b| = |ab|$$

$$\left| \frac{a}{b} \right| = \frac{|a|}{|b|} \quad (b \neq 0)$$

$$|a + b| \leq |a| + |b| \quad (\text{called the triangle inequality})$$

(called the triangle inequality)

Write each expression without absolute value bars.

$$1) \quad \overset{+}{|-\sqrt{3}+2|}$$

$$-\sqrt{3} + 2$$

$$2) \quad \overset{+}{|-\sqrt{3}+1|}$$

$$-(-\sqrt{3}+1)$$

$$\sqrt{3}-1$$

$$3) \quad \overset{-}{|-\sqrt{3}-2|}$$

$$-(-\sqrt{3}-2)$$

$$\sqrt{3}+2$$

$$4) \quad \overset{-}{|2-\pi|} =$$

$$-(2-\pi)$$

$$-2+\pi$$

$$\pi-2$$

$$5) \quad \overset{-}{|x-4|} \text{ if } x < 4$$

$$-(x-4)$$

$$-x+4$$

$$4-x$$

$$6) \quad \overset{-}{|\pi-4|}$$

$$-(\pi-4)$$

$$-\pi+4$$

$$4-\pi$$

$$8) \quad \overset{+}{|p^2+10|} =$$

$$p^2+10$$

$$9) \quad \overset{-}{|-3-\pi|} + 7 =$$

$$3+\pi+7$$

$$10+\pi$$

$$10) \quad \overset{-}{|\sqrt{12}+2|} =$$

$$\sqrt{12}+2$$

Use the concepts of this section to determine what signs on the values of x and y would make the statement true.

1) $xy < 0$

$$x > 0 \text{ and } y < 0$$

OR

$$x < 0 \text{ and } y > 0$$

2) $\frac{x}{y^2} < 0$

$$x < 0$$

HOMEWORK

UNIT 1 DAY 3

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